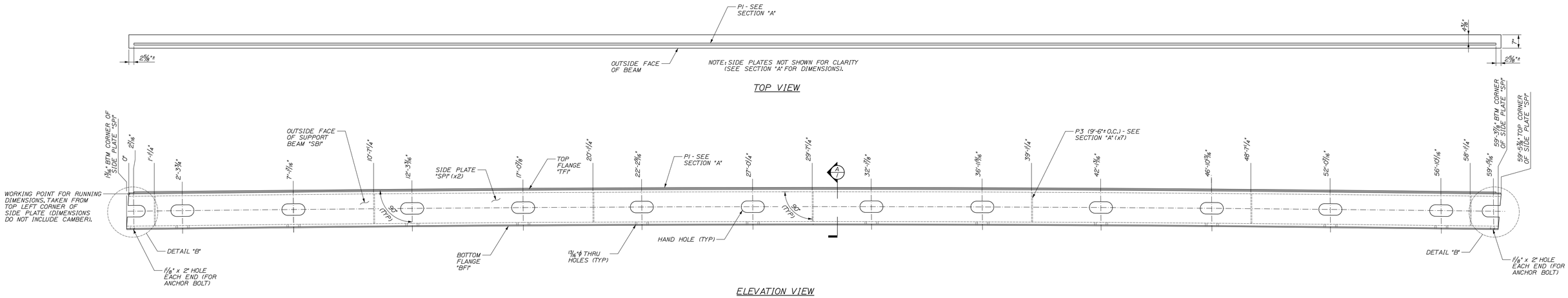
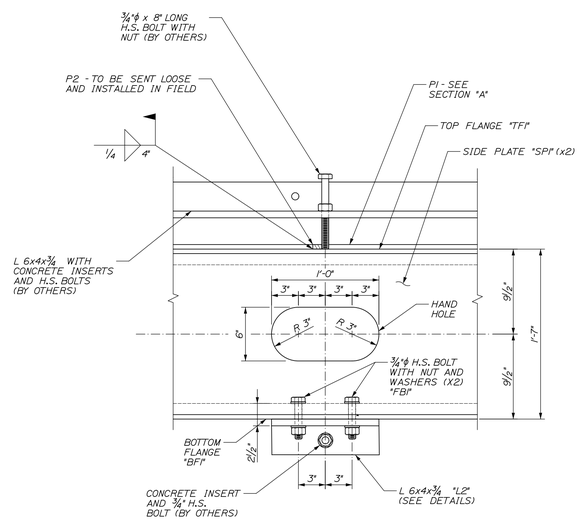


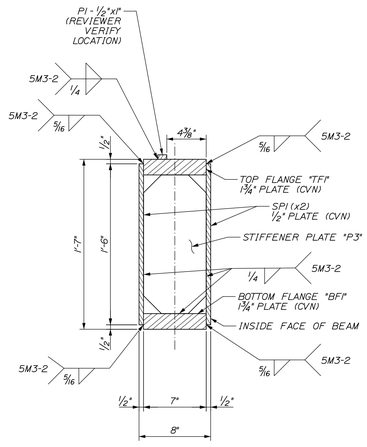
SUPPORT BEAM "SB1" DIMENSIONAL PLANS ELEVATION

SCALE: ½" = 1'-0"



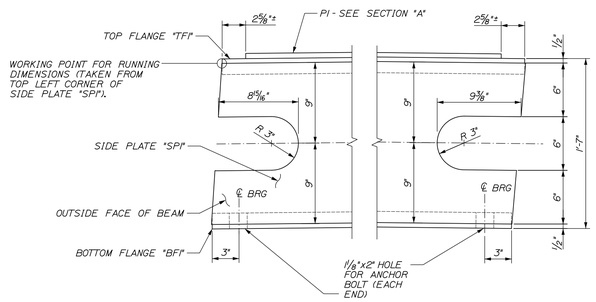
DETAIL "A"

SCALE: 2" = 1'-0"



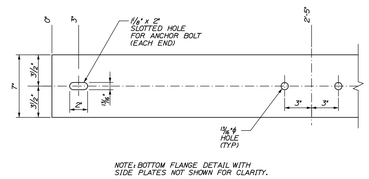
SECTION "A"

SCALE: 1½" = 1'-0"



DETAIL "B" - ENDS OF SUPPORT BEAM

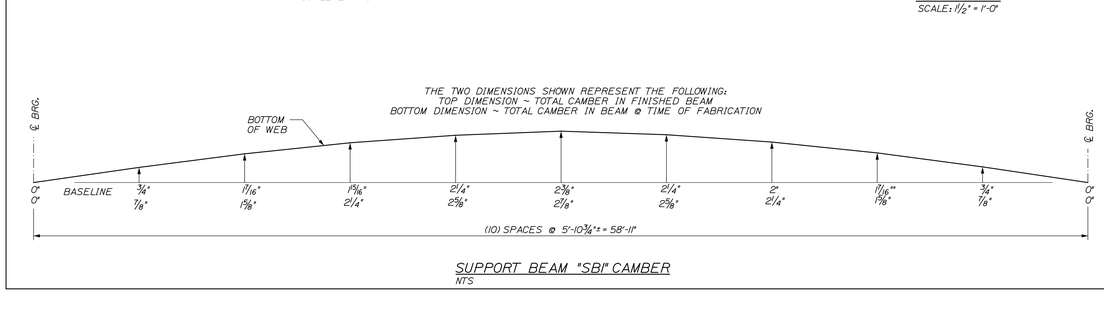
SCALE: 2" = 1'-0"



NOTE: BOTTOM FLANGE DETAIL WITH SIDE PLATES NOT SHOWN FOR CLARITY.

DETAIL "C"

SCALE: 1½" = 1'-0"



SUPPORT BEAM "SB1" CAMBER

NTS

Bill Of Materials

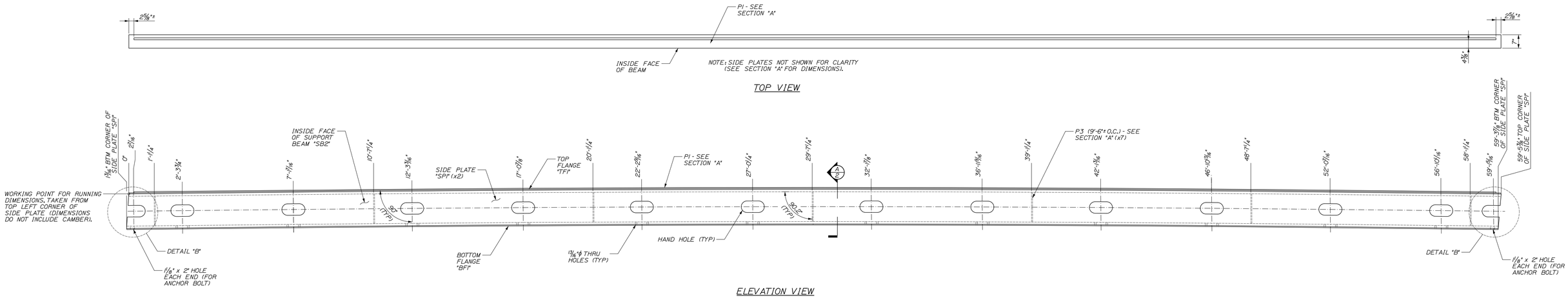
Ship	Ship Mark	No. PCS	Piece Mark	Description	Length	Remarks	Material
1	SB1			Support Beam			
		1	TF1	Top Flange 1 3/4"x7" (CVN)	59'-5 1/4"		
		1	BF1	Bottom Flange 1 3/4"x7" (CVN)	59'-5"		
		2	SP1	Side Plate 1/2"x1'-6" (CVN)	59'-6 9/16"		
		1	P1	1" Wide x 1/2" Thick	59'-0"		
		7	P3	7" Wide x 3/8" Thick Stiffener Plate	1'-3 1/2"		

FINISH					
MATERIAL	SEE BILL OF MATERIALS				
HOLES	SEE PLANS				
ELECTRODES	PER WELD PROCEDURE				
WELDS	PER WELD PROCEDURE				
SURFACE PREP SSPC SP10					
		NO.	DATE	DESCRIPTION	BY
		REVISIONS			

ARC ENTERPRISES, INC.

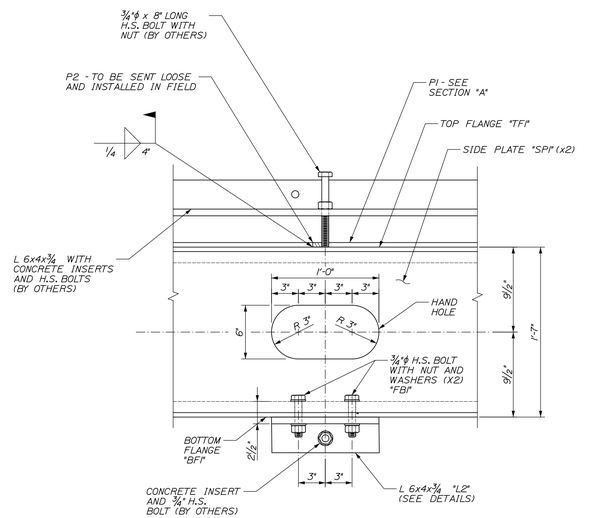
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 – FAX: (207) 265-4054

DRAFTER DLM	SUPPORT BEAM "SB1" PLANS AND DETAILS	PROJECT NO. 13-169
DATE JAN. 2014	MIDDLEBURY, VERMONT VT ROUTE 125, BRIDGE NO. 13	
CHECKED		DWG. NO. 1
DATE	T BUCK CONSTRUCTION	

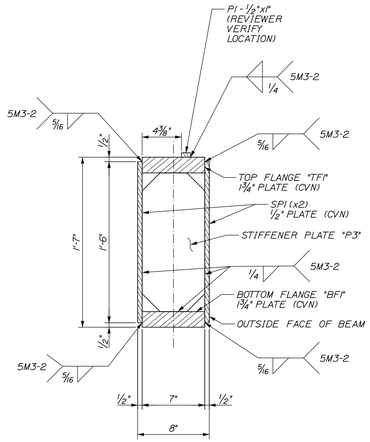


SUPPORT BEAM "SB2" DIMENSIONAL PLANS ELEVATION

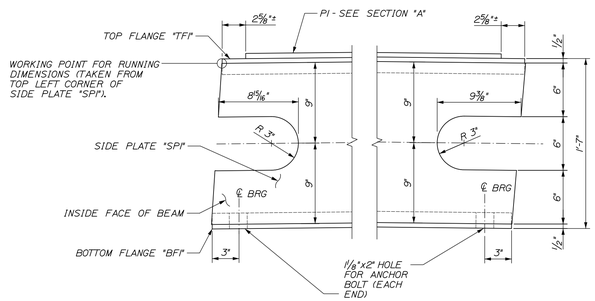
SCALE: ½" = 1'-0"



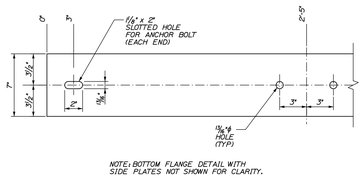
DETAIL "A"
SCALE: 2" = 1'-0"



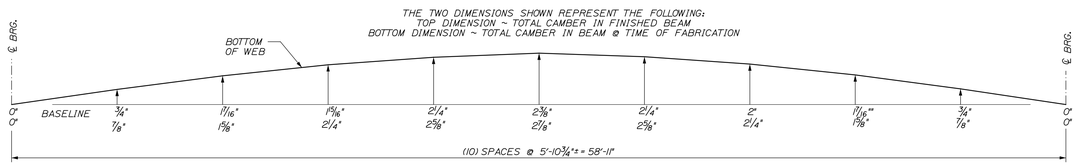
SECTION "A"
SCALE: ½" = 1'-0"



DETAIL "B" - ENDS OF SUPPORT BEAM
SCALE: 2" = 1'-0"



DETAIL "C"
SCALE: 1½" = 1'-0"



SUPPORT BEAM "SB2" CAMBER
NTS

Bill Of Materials

Ship	Ship Mark	No. PCS	Piece Mark	Description	Length	Remarks	Material
1	SB2			Support Beam			
		1	TF1	Top Flange 1 3/4"x7" (CVN)	59'-5 1/4"		
		1	BF1	Bottom Flange 1 3/4"x7" (CVN)	59'-5"		
		2	SP1	Side Plate 1/2"x1'-6" (CVN)	59'-6 9/16"		
		1	P1	1" Wide x 1/2" Thick	59'-0"		
		7	P3	7" Wide x 3/8" Thick Stiffener Plate	1'-3 1/2"		

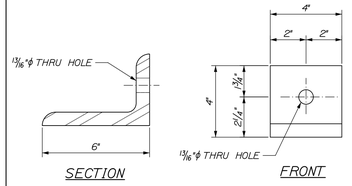
FINISH				
MATERIAL	SEE BILL OF MATERIALS			
HOLES	SEE PLANS			
ELECTRODES	PER WELD PROCEDURE			
WELDS	PER WELD PROCEDURE			
SURFACE PREP SSPC SP10				

NO.	DATE	DESCRIPTION	BY
REVISIONS			

ARC ENTERPRISES, INC.

ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 – FAX: (207) 265-4054

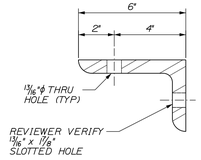
DRAFTER DLM	SUPPORT BEAM "SB2" PLANS AND DETAILS	PROJECT NO. 13-169
DATE JAN. 2014	MIDDLEBURY, VERMONT VT ROUTE 125, BRIDGE NO. 13	DWG. NO. 2
CHECKED	cc: T BUCK CONSTRUCTION	
DATE		



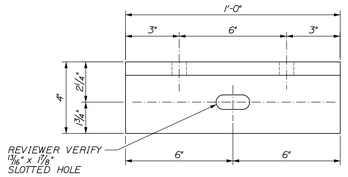
SECTION

FRONT

"L1" DETAILS
SCALE: 3" = 1'-0"

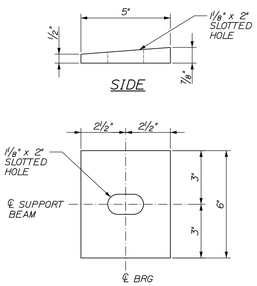


SECTION

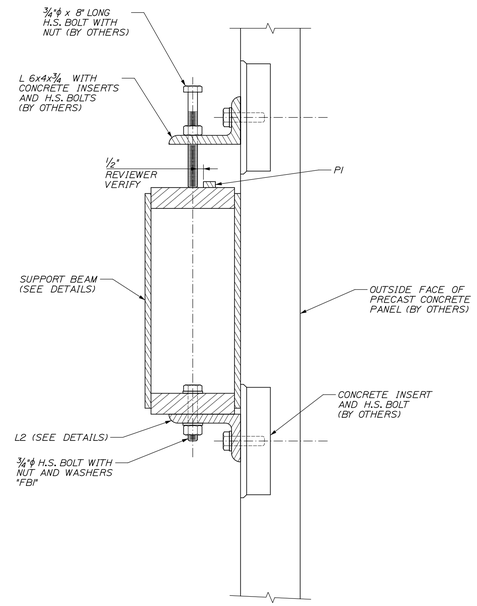


FRONT

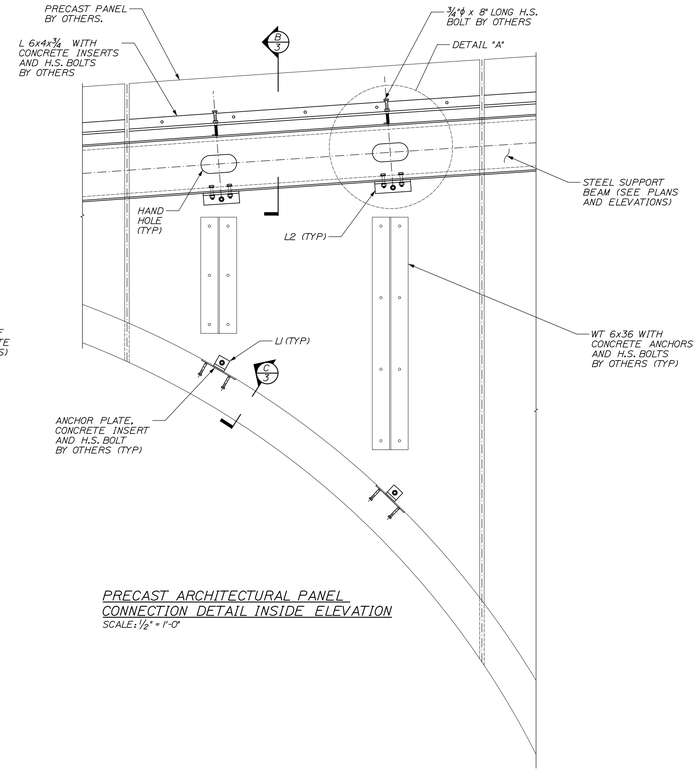
"L2" DETAILS
SCALE: 3" = 1'-0"



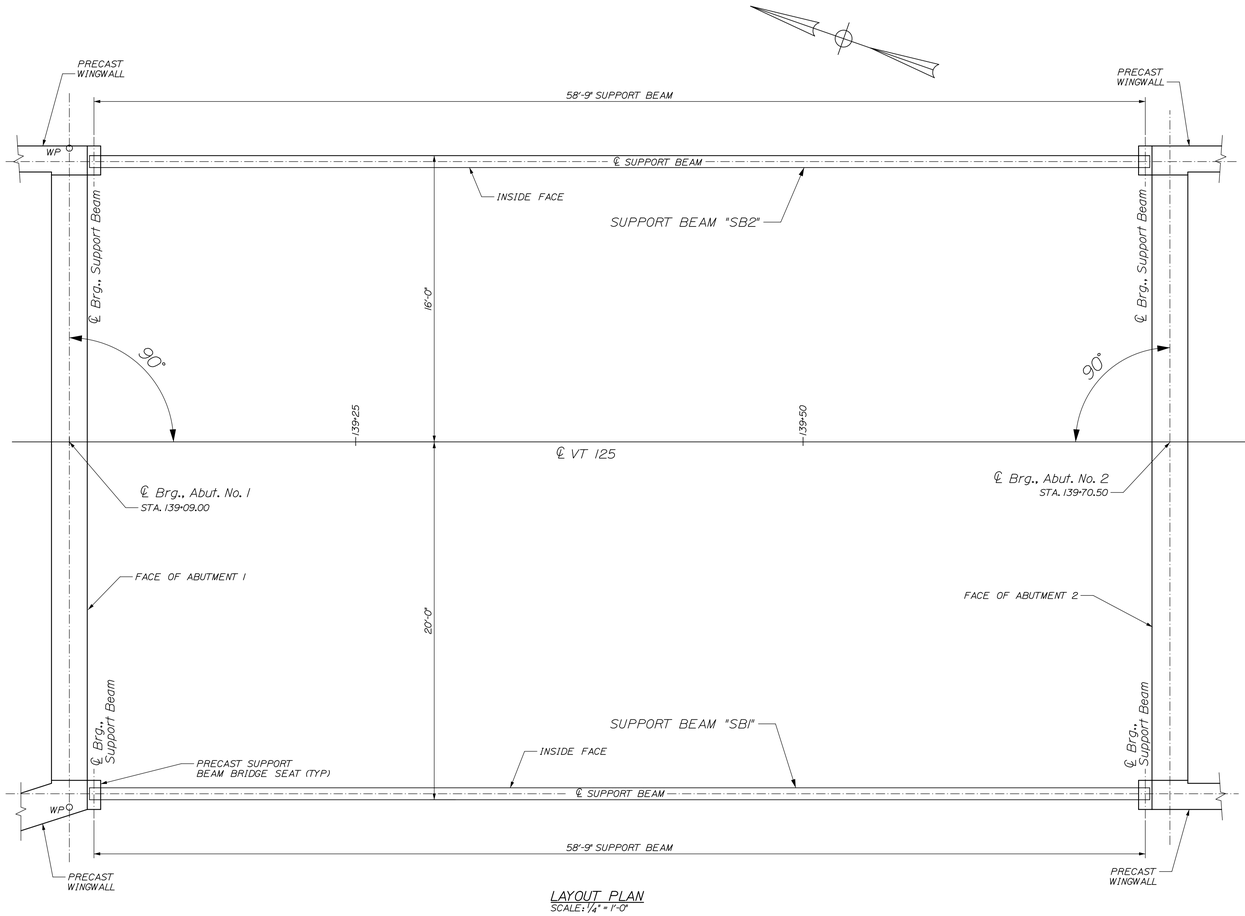
SOLE PLATE DETAILS "SP1"
SCALE: 3" = 1'-0"



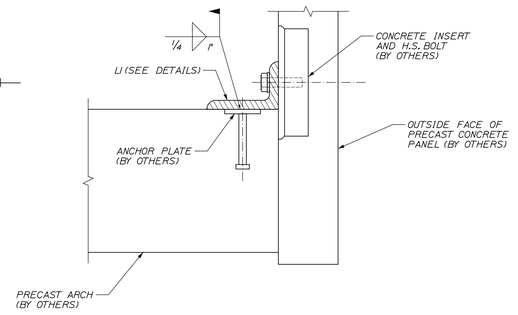
SECTION "B"
SCALE: 2" = 1'-0"



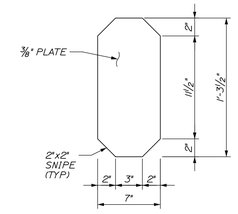
PRECAST ARCHITECTURAL PANEL CONNECTION DETAIL INSIDE ELEVATION
SCALE: 1½" = 1'-0"



LAYOUT PLAN
SCALE: 1/4" = 1'-0"



SECTION "C"
SCALE: 2" = 1'-0"



STIFFENER PLATE "P3"
SCALE: 1½" = 1'-0"

Bill Of Materials

Ship	Ship Mark	No. PCS	Piece Mark	Description	Length	Remarks	Material
24	L1			L 6x4x3/4	4"	Send Loose to be Field Welded	
24	L2			L 6x4x3/4	1'-0"	Send Loose to be Field Installed	
24	P2			1" Wide x 1/2" Thick	4 3/8"	Send Loose to be Field Welded	
48	FB1			3/4" Dia. H.S. ASTM hex head bolt, Type 1, galvanized w/ nut and 2 washers	4"		
14	P3			7" Wide x 3/8" Thick Stiffener Plate	1'-3 1/2"		

FINISH	
MATERIAL	SEE BILL OF MATERIALS
HOLES	SEE PLANS
ELECTRODES	PER WELD PROCEDURE
WELDS	PER WELD PROCEDURE
SURFACE PREP. SSPC SP10	

NO	DATE	DESCRIPTION	BY
		REVISIONS	

ARC ENTERPRISES, INC.
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 – FAX: (207) 265-4054

DRAFTER	DLM	MISCELLANEOUS STEEL	PROJECT NO. 13-169
DATE	JAN. 2014	MIDDLEBURY, VERMONT VT ROUTE 125, BRIDGE NO. 13	DWG. NO. 3
CHECKED		SC: T BUCK CONSTRUCTION	
DATE			

WELDING PROCEDURE SPECIFICATION (WPS) YES (X)
PREQUALIFIED _____ QUALIFIED BY TESTING ___(X)____
or PROCEDURE QUALIFICATION RECORD (PQR) YES (x)

Company Name ARC ENT. INC.
Welding Process(es) GMAW
Supporting PQR No.(s) ARC PQR 5M3-2

Identification # ARC WPS 5M3-2
Revision 1 Date 9/18/2013 By SVH
Autherized by STEVE HOWARD Date 5/14/2012
Type - Manual Semi - Automatic (X)
Machine ( ) Automatic ( )

JOINT DESIGN USED
Type FILLET
Single (X) Double Weld ( )
Backing ( ) NO
Backing Material
Root Opening 0 Root Face Dimension
Groove Angle Radius (J-U)
Back Gouging Method

BASE METALS
Material Spec A709
Type or Grade 36 50 50W
Thickness Groove Fillet UNLIMITED
Diameter (Pipe)

FILLER METALS
LINCOLN L-56
AWS Specification A5.18
AWS Classification ER70S-6

SHIELDING
Flux Gas 98/2
Composition 98Argon 2 oxygen
Electrode - Flux (Class) Flow Rate 36-52 cfh
Gas Cup Size 5/8"

Preheat up to 3/4" - 50 degress F 3/4"-1 1/2" - 70 degress F
1 1/2" - 2 1/2" - 150 degress
over 2 1/2" - 225 degress F

POSITION
Position of Groove Fillet 1F 2F
Vertical Progression ( )

ELECTRICAL CHARACTERISTICS
Transfer Mode (FCAW) Short Circuiting ( )
Globular ( ) Spray (X)
Current : AC ( ) DCEP (X) DCEN ( )
Pulsed ( )
OTHER :

TECHNIQUE
Stringer or Weave Bead STRINGER
Multi-pass or Single Pass (per side) SINGLE/MULTI
Number of Electrodes ONE
Electrode Spacing Longitudinal
Lateral
Angle

Contact Tube to Work Distance 5/8" - 3/4"
Peening
Interpass Cleaning : HAND AND POWER TOOLS

POSTWELD HEAT TREATMENT
Temp
Time

WELDING PROCEDURE

Pass or Weld Layer(s)	S	Filler Metals		Current		Volts	Travel Speed	Joint Details
		Class	Diameter	Type & Polartiy	Amps or Wire Feed Speed			
1	3/16"		.035"	DCEP	209-255	24.9-28.5	8.1-9.9 ipm	
1	1/4"		.035"	DCEP	209-255	24.9-28.5	8.1-9.9 ipm	
1	5/16"		"	"	"	"	8.1-9.9 ipm	
1	3/8"		"	"	"	"	8.1-9.9 ipm	
3	7/16"		"	"	"	"	8.1-9 ipm	
3	1/2"		"	"	"	"	8.1-9 ipm	

No welds over 5/16" with this wire for 50W!

PROCEDURE QUALIFICATION RECORD

PQR NUMBER FM 3-2 *(Include PQR Number on All Supporting Documents)*

Welder's Name Jason Parkhem ID _____ Welding Test Date 9-18-13
Process GMAW Position Horizontal Joint Detail: ☐ Fig. 5.1 ☐ Fig. 5.2 ☐ Fig. 5.3 ☒ Fig. 5.8
Electrode(s) Mfg. Designation Soldarity L56
AWS Electrode Classification ER70S-6 Electrical Stick Out 5/8"
Flux Mfg. Designation _____ AWS Flux Classification _____
Postweld Heat Treatment: Temp. _____ Hold Time _____ Heating/Cooling Rate _____

		Diam.	Current	WFS*	Voltage	Current and Polarity
Electrode	(1)	.035	220		24	DCEP
	(2)					
	(3)					

Calculated Heat Input (see 5.12) _____
Shielding Gas AR2 Dew Point _____ Flow Rate 40 CFH Gas Cup Size 5/8"
Travel Speed: Min. _____ Max. _____
Base Metal Specification and Thickness _____ Heat Number _____
Backing Metal Specification and Thickness _____ Heat Number _____
Base Metal Carbon Equivalent (see 5.4.2) _____
(Attach Copy of Certified Mill Test Report for Base and Backing Materials)

Preheat Temp. _____ Interpass Temp. Min. _____ Max. _____

SPECIMEN	TEST RESULTS
All Weld Metal Tension (AWMT) ☐ ksi ☐ MPa	Tensile Strength _____ Yield Strength _____ Elongation in 50 mm [2 in] (%) _____ Reduction in Area % _____
Visual Inspection: ☒ Acceptable ☐ Unacceptable	**Macro Test: ☒ Acceptable ☐ Unacceptable
Side Bends	1. _____ 2. _____ 3. _____ 4. _____
Reduced Section Tension ☐ ksi ☐ MPa	Tension Strength 1. _____ 2. _____ Location of Break 1. _____ 2. _____
Charpy V-Notch Impact Toughness of Weld Metal SMAW, SAW, FCAW, GMAW—5 Req'd. ESW and EGW—8 Req'd.	(_____, _____, _____, _____, _____) (_____, _____, _____) [a]Avg. ☐ ft-lbs, ☐ J _____ @ _____ ☐ °F ☐ [°C] [a]*Discard the highest and lowest values and average the 3 remaining.*
**Chemistry of Deposited Weld Metal When Required by Contract Documents*	C _____ Mn _____ Si _____ P _____ S _____ Ni _____ Cr _____ Mo _____ V _____ Cu _____
Radiographic Test: ☐ Acceptable ☐ Unacceptable	Remarks: _____
Fillet Weld Soundness Macroetch	Maximum Size Single Pass: 3/8 1. Pass 2. Pass 3. Pass Minimum Size Multiple Pass: _____ 1. _____ 2. _____ 3. _____

We, the undersigned, certify that the above described WPQR/FWS has been qualified in accordance with Clause 5 of the AASHTO/AWS D1.5M/D1.5, (2010) (year) *Bridge Welding Code.*

State/3rd Party Witness [signature] Mfr./Contractor APCE WA
Date 9-18-2013 Authorized By Steve Howard
Agency Results Reviewed _____ Date 9-18-13
Date _____

*Optional **Optional for CJP
Form N-3

Form N-3—Procedure Qualification Record (PQR) for Qualification, Pretest, and Verification Results

Robert H Perechenian, Jr.
CWI 00100111
QC1 EXP. 10/1/2014

PROCEDURE QUALIFICATION RECORD

PQR NUMBER 5M3-2 *(Include PQR Number on All Supporting Documents)*

Welder's Name Jeff Nicol ID ____ Welding Test Date 11-1-2012
Process GMAW Position Horizontal Joint Detail: ☐ Fig. 5.1 ☐ Fig. 5.2 ☐ Fig. 5.3 ☒ Fig. 5.8
Electrode(s) Mfg. Designation Super Arc L-56 Electrical Stick Out 5/8"
AWS Electrode Classification ER 70S-6 AWS Flux Classification ____
Flux Mfg. Designation ____
Postweld Heat Treatment: Temp. ____ Hold Time ____ Heating/Cooling Rate ____

		Diam.	Current	WFS*	Voltage	Current and Polarity
Electrode	(1)	.035	246		26.7	DCEP
	(2)					
	(3)					

Calculated Heat Input (see 5.12) 41.29
Shielding Gas AR2 Dew Point ____ Flow Rate 40 cfh Gas Cup Size 5/8"
Travel Speed: Min. 8.1 Max. 9.9
Base Metal Specification and Thickness 50W 1" Heat Number Q506233-01
Backing Metal Specification and Thickness 50W 1/2" Heat Number QBDE348-01
Base Metal Carbon Equivalent (see 5.4.2) ____
(Attach Copy of Certified Mill Test Report for Base and Backing Materials)
Preheat Temp. 70°F Interpass Temp. Min. 70° Max. 430

SPECIMEN	TEST RESULTS
All Weld Metal Tension (AWMT) ☐ ksi ☐ MPa	Tensile Strength ____ Yield Strength ____ Elongation in 50 mm [2 in] (%) ____ Reduction in Area % ____
Visual Inspection: ☐ Acceptable ☐ Unacceptable	**Macro Test: ☐ Acceptable ☐ Unacceptable
Side Bends	1. ____ 2. ____ 3. ____ 4. ____
Reduced Section Tension ☐ ksi ☐ MPa	Tension Strength 1. ____ 2. ____ Location of Break 1. ____ 2. ____
Charpy V-Notch Impact Toughness of Weld Metal SMAW, SAW, FCAW, GMAW—5 Req'd. ESW and EGW—8 Req'd.	(____, ____, ____, ____, ____) (____, ____, ____) [a]Avg. ☐ ft-lbs, ☐ J ____ @ ____ ☐ °F ☐ [°C] [a]*Discard the highest and lowest values and average the 3 remaining.*
**Chemistry of Deposited Weld Metal When Required by Contract Documents*	C ____ Mn ____ Si ____ P ____ S ____ Ni ____ Cr ____ Mo ____ V ____ Cu ____
Radiographic Test: ☐ Acceptable ☐ Unacceptable	Remarks: ____
Fillet Weld Soundness	Maximum Size Single Pass: 5/16 1. Pass 2. Pass 3. Pass
Macroetch	Minimum Size Multiple Pass: 1/16 1. Pass 2. Pass 3. Pass

We, the undersigned, certify that the above described WPQR/FWS has been qualified in accordance with Clause 5 of the AASHTO/AWS D1.5M/D1.5, (2010 (year)) *Bridge Welding Code.*

State/3rd Party Witness DB Mfr./Contractor ARC Ent
Date 11/1/12 Authorized By Steve Howard
Agency Results Reviewed ____ Date 11-1-2012
Date 11/1/12

*Optional **Optional for CJP
Form N-3

Form N-3—Procedure Qualification Record (PQR) for Qualification, Pretest, and Verification Results

PROCEDURE QUALIFICATION RECORD WORKSHEET

PQR NUMBER 5M3-2

Welder's Name Jeff Niemi ID _____ Welding Test Date 10-2-12

Process GMAW Position 1G Joint Detail: ☒ Fig. 5.1 ☐ Fig. 5.2 ☐ Fig. 5.3 ☐ Fig. 5.8

Electrode(s) Mfg. Designation SuperArc L-56 Electrical Stick Out 5/8"

AWS Electrode Classification ER70S-6 AWS Flux Classification _____

Flux Mfg. Designation _____

Postweld Heat Treatment: Temp. _____ Hold Time _____ Heating/Cooling Rate _____

		Diam.	Current	WFS*	Voltage	Current and Polarity
Electrode	(1)	.035	232		26.7	DCEP
	(2)					
	(3)					

Shielding Gas AR-2 Dew Point _____ Flow Rate 40 cfh Gas Cup Size 3/8"

Travel Speed: Min. 8.1 Max. 9.9

Base Metal Specification and Thickness 50W 1" Heat Number Q506233-01 PO# 7217

Backing Metal Specification and Thickness 50W 1/2" Heat Number Q508348-06 PO# 7359

Preheat Temp. 70° F Interpass Temp. Min. 76° Max. 430°

Pass Number	Layer	Process	FILLER METAL Diam.	CURRENT Type & Polarity	CURRENT Wire Feed Speed	CURRENT Amp	CURRENT Volts	CURRENT Travel Speed	CURRENT Stick Out	TEMPERATURE Preheat	TEMPERATURE Interpass
1		GMAW	.035	DCEP	475	220	26.6	12	5/8	70	
2						240	26.6	10.3			
3						235	26.6	10.5			
4						250	26.6	8.9			
5						240	26.6	8.8			
6						225	26.7	8.8			
7					525	230	26.8	7.6			
8						232	26.8	7.5			
9						225	26.9	6.9			
10						235	26.8	10			
11						226	26.8	10			
12						233	26.9	7.7			

*Optional

Page _____ of _____

For multiple electrodes list each electrode on separate line. For parallel electrodes show "2 @ _____" under number and diameter. Preheat and interpass temperature measured at mid length of plates approximately 25 mm [1 in] from the weld center line.

State/3rd Party Witness AWS Angel L Castro CWI 00040491 QC1 EXP. 4/1/2015 Mfr./Contractor ARC Fab. Inc.

Date 10-3-12

Form N-4

Form N-4—Procedure Qualification Record (PQR) Worksheet

PO # 7217

NUCOR
PLATE MILL
P.O.Box 279
Winton, NC 27986
(252) 356-3700

Mill Test Report

NUCOR It's our Nature.

Issuing Date : 09/08/2010 B/L No. : 271913 Load No. : 273718 Our Order No. : 84594/11 Cust. Order No. : N1052

Vehicle No: TTPX 82158

Specification : 1.0000" x 72.000" x 480.000"
AASHTO M270 GR50W/345W T2&T1/ASTM A709-09a GR50W/345W T2&T1/ASTM A588-05 Grade B

Sold To : LEECO STEEL PRODUCTS
8265 SOUTH LEMONT ROAD
SUITE 100
DARIEN,IL 60561

Ship To : LEECO STEEL PRODUCTS % TURNER'S ISLAND
RAIL SPUR T1892
SOUTH PORTLAND,ME 04106

Marking : N1052

Heat No	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Al(tot)	V	Nb	Ti	N	Ca	B	Sn	CEQ	PCM
0506233	0.16	1.03	0.008	0.001	0.35	0.29	0.23	0.46	0.02	0.028	0.028	0.001	0.002		0.0016	0.0003	0.014	0.46	0.27

	Tensile Test							Charpy Impacts											
Plate Serial No	Pieces	Tons	Dir.	(psi) Yield	(psi) Tensile	Elongation % in 2"	Elongation % in 8"	Dir.	(ft-lbs) 1	(%) shear	(ft-lbs) 2	(%) shear	(ft-lbs) 3	(%) shear	(ft-lbs) Ave.	(%) shear	Size	Temp (°F)	Min Ave.
0506233-01	1	4.90	T	56,400	81,900		17.5	H-L	135.4		144.2		109.9		129.8		10mm	40	15
			T	60,900	83,900		16.9	H-L	72.0		26.5		57.6		52.0		10mm	40	15

NFCM, T1 and T2, 15ft-lbs @ +40 F (20J @ +4 C), H frequency. Temperature reduced by 15 F for each 10 ksi over 65 ksi ;

Manufactured to fully killed fine grain practice by Electric Arc Furnace. Welding or weld repair was not performed on this material. Mercury has not been used in the direct manufacturing of this material. Produced as continuous cast discrete plate as-rolled, unless otherwise noted in Specification.
Yield by 0.5EUL method unless otherwise specified. Ceq = C+(Mn/6)+((Cr+Mo+V)/5)+((Cu+Ni)/15)
Pcm = C+(Si/30)+(Mn/20)+(Cu/20)+(Ni/60)+(Cr/20)+(Mo/15)+(V/10)+5B
Melted and manufactured in the USA. ISO 9001-2000 certified (#006461) by SRI Quality System Registrar (#0985-09). PED 97/23/EC 7/2 Annex 1, Para. 4.3 Compliant. DIN 50049 3.1.B/EN 10204 3.1B(2004), DIN EN 10204 3.1(2005) compliant. For ABS grades only, Quality Assurance certificate 06-MMPQA-383

We hereby certify that the contents of this report are accurate and correct. All test results and operations performed by the material manufacturer are in compliance with the applicable specifications, including customer specifications.

T. A. Depretis, Metallurgist

09/13/2010 9:35:55 AM

10-192-S.S. PC# 7339

NUCOR
PLATE MILL
P.O.Box 279
Winton, NC 27986
(252) 356-3700

Mill Test Report

NUCOR It's our Nature.

Issuing Date : 12/11/2010 **B/L No. :** 280134 **Load No. :** 282249 **Our Order No. :** 87165/1 **Cust. Order No. :** 6302355

Vehicle No: PTTX 137198

Specification : 0.5000" x 88.000" x 638.000"
AASHTO M270 GR50W/345W T2&T1/ASTM A709-10 GR50W/345W T2&T1/ASTM A588-10 Grade B

Sold To : Namasco - Middletown
760 NEWFIELD STREET
PO BOX 1716
MIDDLETOWN,CT 06457

Ship To : TURNER ISLAND
40 MECHANIC STREET
RR SIDING # TI 0892 7
SOUTH PORTLAND,ME 04106

Marking :

Heat No	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Al(tot)	V	Nb	Ti	N	Ca	B	Sn	CEQ	PCM
0508398	0.17	1.04	0.011	0.000	0.33	0.30	0.21	0.48	0.02	0.032	0.030	0.003	0.004		0.0019	0.0004	0.010	0.49	0.29

		Tensile Test						Charpy Impacts										
Plate Serial No	Pieces	Tons	Dir.	(psi) Yield	(psi) Tensile	Elongation % in 2"	Elongation % in 8"	Dir.	(ft-lbs) 1	(%) shear	(ft-lbs) 2	(%) shear	(ft-lbs) 3	(%) shear	(ft-lbs) Ave.	(%) shear	Size	Temp (°F)	Min Ave.
0508398-06	1	3.98	T	59,100	83,700		16.6	H-L	52.8		28.2		54.1		45.0		10mm	10	15
			T	61,100	84,900		22.8	H-L	54.1		89.0		69.3		70.8		10mm	40	15

NFCM, T1 and T2, 15ft-lbs @ +40 F (20J @ +4 C), H frequency. Temperature reduced by 15 F for each 10 ksi over 65 ksi ;

Manufactured to fully killed fine grain practice by Electric Arc Furnace. Welding or weld repair was not performed on this material. Mercury has not been used in the direct manufacturing of this material. Produced as continuous cast discrete plate as-rolled, unless otherwise noted in Specification.
Yield by 0.5EUL method unless otherwise specified. Ceq = C+(Mn/6)+((Cr+Mo+V)/5)+((Cu+Ni)/15)
Pcm = C+(Si/30)+(Mn/20)+(Cu/20)+(Ni/60)+(Cr/20)+(Mo/15)+(V/10)+5B
Melted and manufactured in the USA. ISO 9001:2008 certified (#008063) by SRI Quality System Registrar (#0985-09). PED 97/23/EC 7/2 Annex 1, Para. 4.3 Compliant.
DIN 50049 3.1.B/EN 10204 3.1B(2004), DIN EN 10204 3.1(2005) compliant. For ABS grades only, Quality Assurance certificate 09-MMPQA-546

We hereby certify that the contents of this report are accurate and correct. All test results and operations performed by the material manufacturer are in compliance with the applicable specifications, including customer specifications.

T. A. Depretis, Metallurgist

12/23/2010 11:50:38 AM

TÜVRheinland® NDT NON-DESTRUCTIVE TESTING SERVICES

RADIOGRAPHIC INSPECTION OF WELDS REPORT

Mr. Steve Howard
ARC Enterprise
27 Commercial Road
P.O. Box 120
Kingfield, ME 04947

Report #: 1 Page 1 of 1
P.O. #: 8274
Work Order #: 423012
Project: PQR GMAW 1G, SAW 1G
Lab #: 127423
Welders: B. Bowin, J. Niemi

Date: October 9, 2012

FILM INTERPRETATION

Test Method Standard: NDE-RT-2 Acceptance Standard: AWS D1.5-2010

Drawing # N/A Viewing – Check One: [X] Single Wall [ ] Double Wall

Film View	Acceptable	Rejectable	Incomplete Fusion	Incomplete Penetration	Crack	Slag Inclusion	Tungsten Inclusion	Porosity	Undercut	Surface Condition	Film Artifact	Remarks
B. Bowin												PQR 42 SAW
0-1		X						X				
1-2	/									/		
J. Niemi												PQR 5M3-2
01-	/											GMAW
1-2	/									/		

Radiographer: Andrew B. Kelly (PSI) Level: II

Interpreter: Andrew B. Kelly (PSI) Level: II

Date Radiographed:	10-9-12
Source:	IR-192
Pipe Size:	Plate
Nominal Wall:	1"
Reinforcement:	.100"
Backing Ring:	.375"
Total Thickness:	1.475"
Curies or MA:	93 curies
Max. Effective Focal Spot Size:	.135"
S-O Distance:	30"
Unsharpness:	< .020"
Penetrameter:	ASME 25
Shim Thickness:	.100"
Sensitivity:	2T
Exposure Time:	20 minutes
Lead Backup:	N/A
Screens:	.010 PB. F&B
Film Size:	4.5" x 17"
Film Type:	D5
Number Films:	2
Density Range:	2.0 - 4.0
Type of Material:	Carbon Steel

Technique:

X Single Wall
____ Double Wall
____ Contact
____ Panoramic
____ Elliptical
____ Super Imposed
____ Approx. Angle Beam

Reviewed By: [signature] Date: 10/11/12

Testing was performed in accordance with accepted industry practice as well as the test methods referenced. This test report applies only to those items tested. This report shall not be reproduced except in full without the written consent of Non-Destructive Testing Services, Inc.

Aliquippa, PA

NDE • MECHANICAL LAB • FIELD SERVICES www.nondestructivetesting.com

TÜVRheinland®
NDT NON-DESTRUCTIVE TESTING SERVICES

Mr. Steve Howard
Arc Enterprises, Incorporated
PO Box 27 Commercial Road
Kingfield, ME 04947

Report #: 1
P.O. #: 8274
Lab #: 121429
Date Received: 10/10/12
Date Tested: 10/12/12

Date: October 12, 2012

Work Order: 423012

WELDING PROCEDURE QUALIFICATION RECORD #SMS-2

Fabricator:	ARC Enterprises, Incorporated	Date Welded:	10/02/12
Welding Process (es):	GMAW	# of Passes:	12
Welding Position:	1G	Filler Metal Specification:	N/A
Electrode:	Superarc L-56	Filler Metal Classification:	ER70S-6
Flux Mfg. Designation:	N/A		

Types: [ ] Manual [ ] Automatic [X] Semi-Auto

Electrode	Diameter	Current	WFS*	Volts	Current	Polarity
1	.035	232	N/A	26.7	DC	EP

Shielding Gas:	AR-2	Flow Rate:	40 CFh	Dew Point:	N/A
Preheat Temp:	70° F		Interpass Temp:	70° F Min. 450° Max.	
Material Specification:	ASTM A709		Material Thickness:	1"	
Welding Witnessed By:	Angel L. Castro		Welded By:	Jeff Niemi	

SPECIMEN	TEST RESULTS
ALL WELD METAL TENSION (AWMT)	Tensile Strength (psi): 85,000 Yield Strength (psi): 69,000 Elongation in 2" (%): 23 Reduction in Area (%): 52
SIDE BENDS	1. Pass 2. Pass 3. Pass 4. Pass
REDUCED SECTION TENSION	Tensile Strength 1: 86,000 Location of Break 1: HAZ Tensile Strength 2: 84,500 Location of Break 2: HAZ
CHARPY IMPACT (WELD METAL) 0° F	Charpy 1: 127 62 126 98 120 Avg. Ft-Lb: 114.7 @ 20 ft. lbs. Charpy 2: Avg. Ft-Lb:
CHEMISTRY ELEMENTS	C Cr Mn Mo Ni S Cu Si P V
MACROETCH	1. Acceptable 2. Acceptable 3. Acceptable

RADIOGRAPHIC TEST RESULTS

Film I.D.	Results	Remarks	Film I.D.	Results	Remarks
J. Niemi 0-1, 1-2	Pass				

Per Inspector: J. Peter Merther, P.E.
Testing witnessed by: Angel L. Castro
Meets the requirements of AWS D1.5-2010 - Bridge Welding Code.

Process date: 10/12/12
Witness date: 10/03/12

Respectfully submitted,

Chris Nichol
TUV Rheinland Industrial Solutions, Inc.
d/b/a Non-Destructive Testing Services

PQR AWS D1.5 Fracture Critical NYSSCM & NYCDOT
RLK 7/13/09